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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,658	12/13/2005	Alan Robert Chapman	M8540/303808	2272

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EXAMINER

MOHADDES, LADAN

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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08/13/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/560,658	Applicant(s) CHAPMAN ET AL.	
	Examiner LADAN MOHADDES	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 8,9 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-12 and 14-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/24/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim 1 is amended. Claims 8, 9 and 13 are canceled. Claims 1-7, 10-12 and 14-21 are pending.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6, 10-12, 14, and 16-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Turpin (GB 2375222, already of record).

Regarding claims 1, 2, 17-19 and 21, Turpin discloses a flow field plate (which can be used as a separator as recited in claim 21) for a fuel cell or electrolyser (page 1, paragraph [1]) a matrix flow field comprising an array of lands which define a network of interconnected fluid diffusion channels with branched primary gas/fluid delivery channels (Fig. 2, 103 and 104) wider than fluid diffusion channels (Fig. 2, 102). Note that channels 104, 103 and 102 are forming an interconnected network.

Regarding claims 3-6, Turpin discloses both flow field segments that are in parallel and in series with respect to each other (Fig. 2).

Regarding claims 10 and 11, Turpin discloses both lands that are shaped to define diffusion channels with constant and variable channels (compare channels 102 with another 102 and 103 in Fig. 2 as an example).

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Regarding claim 12, Turpin discloses that the shape of the lands are non-circular and differ from the symmetry of a group of lands (Fig. 2).

Regarding claim 14, Turpin discloses that the lands are polygonal.

Regarding claim 16, Turpin discloses pointed triangular corners of impermeable land which provides choke point for fluid passage.

Regarding claim 20, Turpin does not disclose that the power deliverable by each flow field plate is in excess of 750 mW.cm^{-2} calculated on the working surface of the flow field. As taught by *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977): "Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable". Turpin discloses a flow field plate which is materially and structurally identical to that of instant application and therefore one would expect that power deliverable of the flow field plate will inherently be similar at the same current densities and voltage.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
6. Claims 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turpin (GB 2375222, already of record) as applied to claims 1-6, 10-12, 14, and 16-20, above and further in view of Abdou et al. (WO 02/069426, hereafter referred to as Abdou, already of record)

Regarding claims 7 and 15, Turpin discloses lands with triangular corners but does not expressly teach lands with diamond, hexagon, square or triangular on hexagonal array. In the same field of endeavor Abdou discloses diamond (Fig. 1B) and hexagonal (Fig. 1A) lands which are aligned on a hexagonal array (Fig. 1A) to optimize the pressure drop in the fuel flow channels and therefore improving flow distribution (page 4: ln 7-11). Therefore, it would have been obvious for the person with ordinary

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skills in the art at the time the invention was made to incorporate land shapes of Abdou in the flow field of Turpin to change the flow direction as taught by Abdou and to optimize the pressure drop in the fuel flow channels and therefore improving flow distribution.

Response to Arguments

7. Applicant's arguments filed 06/04/2010 have been fully considered but they are not persuasive. The Applicant has asserted that Turpin does not disclose a matrix flow field with claimed channels and dimensions. However, as shown in paragraph [2] of this Office action fluid delivery channels with wider dimension than fluid diffusion channels are though by Turpin. The applicant has also argued that the channels of Turpin are broader below the surface than at the surface. The examiner respectfully disagrees and points to Fig. 1 of Turpin where the width of the channels 102, 103 and 104 is uniform within and below the surface. The applicant also argues that Figure 9 of Turpin does not show a matrix flow field but just a channel. However, Figure 2 of Turpin to which the Examiner has relied on rejecting claim 1 shows an interconnected flow field channels in between array of lands which form a matrix.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LADAN MOHADDES whose telephone number is (571)270-7742. The examiner can normally be reached on Monday to Thursday from 8:30 AM to 6:00 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LADAN MOHADDES/
Examiner, Art Unit 1795

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795